

## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

K00002618 Lab ID:

**Knoxville Regional Laboratory** 

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

K00002618001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA ash spill

**Date/Time Collected:** 

**Project Site No.:** Station No.:

1

**EMORY012.1RO** 

Sampler's Name:

07/16/2009 10:00

County:

Geoff Klein ROANE - 73

**Sample Matrix:** EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville TDEC-WPC

Send Report To: **Agency Invoiced:**  327.34-20 **TDEC-WPC** TDEC-WPC

**Priority Date:** Date/Time Received:

07/26/2009 07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.81

pH Units

Chlorine, residual:

Conductivity:

142 26.21 uMHO

Temperature:

**Dissolved Oxygen: 7.21** 

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME		***************************************			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	41	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	34	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002618002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY002.1RO

Date/Time Collected: Sampler's Name:

07/16/2009 10:55

County:

Geoff Klein ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20

Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** Date/Time Received: 07/26/2009

Received By:

14:12

07/16/2009 Ken Hitchman **Field Determinations** 

pH:

7.65

pH Units

Chlorine, residual:

Conductivity:

120

uMHO

Temperature:

28.02 **Dissolved Oxygen:** 7.39

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	31	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	33	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	ME	THOD: SM 254		· .			
ANALYTE	RESULT	UNITS	MDL MQ		ANALYZED BY:	DATE	
Settleable Residue	U .	ml/L	0.10	0.10	P Leathers	7/17/2009	

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	16	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002618003

**Project Name:** 

TVA-Ash Spill

Sample Description:

approx 100' downstream from middle dredge po Chlorine, residual: Sampler Project Name: TVA ash spill

**Project Site No.:** 

2A

Station No.:

Dredge Plume

**Date/Time Collected:** 

Sampler's Name:

07/16/2009 11:08

County:

Geoff Klein ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	88	mg/L	3.8	10	M Chen	7/23/2009

**Field Determinations** 

**Dissolved Oxygen:** 7.04

Conductivity:

Temperature:

7.58

143

27.03

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	77	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable METHOD: SM 2540F							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009	

TEST: Residue, Suspended	ME.			,		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	19	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002618004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill Project Site No.:

2B

Station No.:

EMORY001.9RO

Date/Time Collected:

07/16/2009 11:18

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville **TDEC-WPC** 

Billing Code: **Send Report To:**  327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

:Hq

7.54

pH Units

**uMHO** 

Chlorine, residual:

Conductivity:

137

26.98

Temperature: **Dissolved Oxygen:** 7.02

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	81	mg/L	3.8	10	M Chen	7/23/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	68	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009

TEST: Residue, Suspended METHOD: SM 2540D							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Suspended Solids	16	mg/L	10	10	A Peeples	7/17/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002618005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Emory River mile 1.7

**Project Site No.:** 

Station No.:

EMORY001.7RO

**Date/Time Collected:** 

Sampler's Name:

07/16/2009 11:29 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC

**Send Report To:** 

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

8.58

pH Units

Chlorine, residual:

Conductivity:

239

uMHO

Temperature:

26.89

Dissolved Oxygen: 10.49

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	ME:					
ANALYTE	RESULT UNITS N		MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	110	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	ME.	THOD: SM 350	0-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	85	mg/L	0.7	1	M Chen	7/20/2009	

TEST: Residue, Settleable METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009

TEST: Residue, Suspended METHOD: SM 2540D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	19	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002618006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Emory River mile 0.1

**Project Site No.:** 

**Station No.:** 

EMORY000.1RO

Date/Time Collected: Sampler's Name:

07/16/2009 11:40

County:

Geoff Klein ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

**Send Report To:** 

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

**TDEC-WPC** 07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH: 8.76

Chlorine, residual:

uMHO

Conductivity:

Temperature:

253

26.90

**Dissolved Oxygen: 11.47** mg/L

Other:

Flow:

**CFS** 

pH Units

TEST: Alkalinity, Total	WE					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	110	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	85	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	Settleable METHOD: SM 2540F						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009	

TEST: Residue, Suspended	0D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	22	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002618007

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Clinch River mile 2.3

**Project Site No.:** 

5

**Station No.:** 

CLINC002.3RO

**Date/Time Collected:** 

07/16/2009 11:54

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73** 

EFO:

Water

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

**Send Report To:** 

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

:Hq

8.39

pH Units

Chlorine, residual:

Conductivity:

263

**uMHO** 

Temperature:

27.22

**Dissolved Oxygen: 9.61** 

mg/L

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					. *
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	87	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	ME'					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	69	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	ME	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009

TEST: Residue, Suspended	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002618008

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA ash spill **Project Site No.:** 

5A

Station No.:

KingAshOutFf2

Date/Time Collected:

07/16/2009 12:01

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Knoxville

Sampling Agency:

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To:

TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

:Hq

7.91

pH Units

Chlorine, residual:

Conductivity:

242

uMHO

mg/L

Temperature:

27.23

**Dissolved Oxygen: 7.48** 

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	78	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	68	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	ME	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009

ME.	THOD: SM 254				
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
18	mg/L	10	10	A Peeples	7/17/2009
	RESULT	RESULT UNITS		RESULT UNITS MDL MQL	RESULT UNITS MDL MQL ANALYZED BY:

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

K00002618009

**Project Name:** 

TVA-Ash Spill

pH:

**Field Determinations** 

8.36

pH Units

Sample Description: Sampler Project Name: TVA ash spill

Cilnch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

uMHO

**Project Site No.:** 

Conductivity: Temperature:

264 26.70

Station No.: **Date/Time Collected:**  CLINC004.5RO 07/16/2009 12:13

**Dissolved Oxygen: 9.51** 

Other:

Sampler's Name:

Geoff Klein ROANE - 73

Flow:

**CFS** 

mg/L

County: Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code: Send Report To:** 

**TDEC-WPC** 327.34-20 TDEC-WPC TDEC-WPC

**Agency Invoiced: Priority Date:** 

07/26/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Alkalinity, Total	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	100	mg/L	3.8	10	M Chen	7/23/2009

TEST: Hardness, Calcium	MET	METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	87	mg/L	0.7	1	M Chen	7/20/2009

TEST: Residue, Settleable	ME.	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	P Leathers	7/17/2009

TEST: Residue, Suspended	ME			<del></del>		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	7/17/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 



## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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**Greg Denton** 

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike Knoxville, TN 37921

Lab ID: K00002618

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

**Billing Code:** 

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

K00002618001

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA ash spill

Date/Time Collected:

**Project Site No.:** 

Station No.:

EMORY012.1RO 07/16/2009 10:00

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:** 

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC

**Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.81

pH Units

Chlorine, residual:

Conductivity:

142 26.21 uMHO

mg/L

Temperature:

**Dissolved Oxygen:** 7.21

Other: Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009	-			W Frye	7/20/2009

TEST: ICP	METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
Iron	350	µg/L	2.9	10	S Ufegbu	7/31/2009		

TEST: ICP-MS	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	170	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	U	μg/L	0.93	· 5	M Pattanayek	7/29/2009
Barium	41	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	2.1J	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.33J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	3.7	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	1.0	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	96	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.5	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	0.037J	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.19J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	6.2	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618001

**Project Name:** 

TVA-Ash Spill

**Sample Description:** 

Emory River mile 12.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

Station No.:

EMORY012.1RO

Date/Time Collected:

07/16/2009 10:00

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville

**Billing Code:** Send Report To: TDEC-WPC 327.34-20

Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC

Date/Time Received:

08/01/2009

Received By:

07/16/2009 14:12

Ken Hitchman

F	ield	Determinations
p	H:	7.81

Chlorine, residual:

Conductivity:

142

uMHO

pH Units

Temperature:

26.21

**Dissolved Oxygen:** 7.21

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury	ME	THOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.087J	μg/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618002

**Project Name:** 

TVA-Ash Spill

Sample Description: Sampler Project Name: TVA ash spill

Emory River mile 2.1

**Project Site No.:** 

**Station No.:** EMORY002.1RO **Date/Time Collected:** 10:55

Sampler's Name:

07/16/2009 Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency: Billing Code:

Knoxville TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.65

pH Units

Chlorine, residual:

Conductivity:

120 28.02 uMHO

Temperature: Dissolved Oxygen: 7.39

mg/L

Other:

Flow:

TEST: Digestion Metals	gestion Metals METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	07/20/2009				W Frye	7/20/2009	

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	230	μg/L	2.9	10	S Ufegbu	7/31/2009

TEST: ICP-MS	ME <sup>-</sup>	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	310	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	0.33J	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	5.9	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	50	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	0.15J	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.51J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	2.8	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.67J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	70	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.5	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	0.034J	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	1.4	μg/L	0.03	- 1	M Pattanayek	7/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	9.1	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618002

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** 

EMORY002.1RO

Date/Time Collected:

07/16/2009 10:55

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

**Priority Date:** Date/Time Received: 08/01/2009 07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.65

pH Units

Chlorine, residual:

Conductivity:

120

uMHO

Temperature:

28.02

**Dissolved Oxygen:** 7.39

mg/L

Other:

Flow:

**CFS** 

TEST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

K00002618003

**Project Name:** 

TVA-Ash Spill

Sample Description:

approx 100' downstream from middle dredge po Chlorine, residual:

Sampler Project Name: TVA ash spill

**Project Site No.:** 

2A

Station No.:

Dredge Plume

Date/Time Collected:

Sampler's Name:

07/16/2009 11:08

County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** Send Report To: **TDEC-WPC** 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

Field	Determinations
	<b>-</b>

pH:

7.58

pH Units

Conductivity:

143

uMHO

Temperature: Dissolved Oxygen: 7.04

27.03

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			*****
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frye	7/20/2009

TEST: ICP METHOD: EPA 200.7							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	280	μg/L	2.9	10	S Ufegbu	7/31/2009	

TEST: ICP-MS	ME <sup>-</sup>	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	390	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	3.7J	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	. 52	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	. 1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.51J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	1.8	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.85J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	71	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.7	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.47J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	4.7J	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	3.9J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618003

**Project Name:** 

TVA-Ash Spill

Sample Description:

approx 100' downstream from middle dredge po Chlorine, residual:

**Field Determinations** 

Dissolved Oxygen: 7.04

Conductivity:

Temperature:

7.58

143

27.03

pH Units

**uMHO** 

mg/L

**CFS** 

pH:

Other:

Flow:

Sampler Project Name: TVA ash spill

**Project Site No.:** 

2A

**Station No.:** 

Dredge Plume 11:08

**Date/Time Collected:** 

07/16/2009

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Mercury	WE.	THOD: EPA 24	5.1		-	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	ug/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill

**Project Site No.:** 

2B

Station No.:

EMORY001.9RO

Date/Time Collected:

07/16/2009 11:18

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

7.54

pH Units

Chlorine, residual:

Conductivity:

137

uMHO

Temperature:

26.98 **Dissolved Oxygen:** 7.02

mg/L

Other:

Flow:

EST: Digestion Metals METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frye	7/20/2009

TEST: ICP	MET	THOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	190	μg/L	2.9	10	S Ufegbu	7/31/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	220	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	6.3	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	56	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.39J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	1.6	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.48J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	74	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.4	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.32J	μg/L	0.03	.1	M Pattanayek	7/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	2.4J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618004

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill

**Project Site No.:** 

2B

Station No.:

Date/Time Collected:

EMORY001.9RO

Sampler's Name:

07/16/2009 11:18

County:

Geoff Klein

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

**TEST: Mercury** 

Ken Hitchman

MET	HOD: EPA 24	5.1			
ESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

**Field Determinations** 

**Dissolved Oxygen:** 7.02

Chlorine, residual:

Conductivity:

Temperature:

pH:

Other:

Flow:

7.54

137

26.98

pH Units

**uMHO** 

mg/L

**CFS** 

**ANALYTE** RE U μg/L 0.029 0.2 A Wilson 7/21/2009 Mercury

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA ash spill

**Project Site No.:** 

3

**Station No.:** 

EMORY001.7RO

Date/Time Collected:

07/16/2009 11:29

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC **TDEC-WPC** 

**Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

8.58

pH Units

Chlorine, residual:

Conductivity:

239

uMHO

Temperature: **Dissolved Oxygen: 10.49** 

26.89

mg/L

Other:

Flow:

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frye	7/20/2009

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	270	μg/L	2.9	10	S Ufegbu	7/31/2009	

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	260	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	4.3J	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	56	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.62J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	2.1	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.72J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	100	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	2.0	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.23J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	3.7J	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	2.6J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618005

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA ash spill

**Project Site No.:** 

3

Station No.:

Date/Time Collected:

EMORY001.7RO 07/16/2009 11:29

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO:

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-WPC 327.34-20

Send Report To:

TDEC-WPC

Agency Invoiced: **Priority Date:** 

TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

**TEST: Mercury** 

Ken Hitchman

METHOD, EDA	245	4

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Wilson	7/21/2009

**Field Determinations** 

Dissolved Oxygen: 10.49

Chlorine, residual:

Conductivity:

Temperature:

8.58

239

26.89

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618006

**Project Name:** 

TVA-Ash Spill

Sample Description:

Emory River mile 0.1

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.: Date/Time Collected:**  EMORY000.1RO 11:40

Sampler's Name:

07/16/2009 Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville **TDEC-WPC** 

**Billing Code:** Send Report To: 327.34-20 TDEC-WPC **TDEC-WPC** 

Agency Invoiced: **Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Digestion Metals	MET	HOD: EPA 20	0.2		,	,
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frve	7/20/2009

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen: 11.47** 

Conductivity:

Temperature:

8.76

253

26.90

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

TEST: ICP	MET	ΓHOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	250	μg/L	2.9	10	S Ufegbu	7/31/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	230	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	5.7	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	U	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	· U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.47J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	1.7	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.56J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	110	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.7	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.17J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	U	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618006

**Project Name:** 

TVA-Ash Spill

Sample Description: Sampler Project Name: TVA ash spill

Emory River mile 0.1

11:40

**Project Site No.:** 

Station No.: EMORY000.1RO **Date/Time Collected:** 

Sampler's Name:

07/16/2009 Geoff Klein

County: Sample Matrix: ROANE - 73

EFO: Sampling Agency: Water Knoxville TDEC-WPC

**Billing Code:** Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** Date/Time Received: 08/01/2009 07/16/2009 14:12

Received By:

TEST: Mercury

Ken Hitchman

_			-				
	Λ	<b>MET</b>	HC	D:	<b>EPA</b>	245.1	1

**Field Determinations** 

Dissolved Oxygen: 11.47

Chlorine, residual:

Conductivity:

Temperature:

8.76

253

26.90

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit

K00002618007

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA ash spill

**Project Site No.:** 

**Station No.:** Date/Time Collected: CLINC002.3RO 07/16/2009 11:54

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:** 

TDEC-WPC 08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

8.39

pH Units

Chlorine, residual:

Conductivity:

263

uMHO

Temperature: 27.22 Dissolved Oxygen: 9.61

mg/L

Other:

Flow:

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frye	7/20/2009

TEST: ICP	ME	ΓHOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	80	μg/L	2.9	10	S Ufegbu	7/31/2009

TEST: ICP-MS	ME1	ΓHOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	150	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	6.4	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	56	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.27J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	4.4	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.29J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	45	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.4	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/Ľ	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.17J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	3.9J	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	2.3J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618007

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA ash spill

**Project Site No.:** 

5

Station No.:

CLINC002.3RO

Date/Time Collected:

07/16/2009 11:54

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Knoxville

Sampling Agency: Billing Code:

TDEC-WPC

Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

**Field Determinations** 

pH:

8.39

pH Units

Chlorine, residual:

Conductivity:

263

uMHO

mg/L

CFS

Temperature: 27.22 Dissolved Oxygen: 9.61

Other:

Flow:

TEST: Mercury	MET	THOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.045J	μg/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Project Site No.:

Sampler Project Name: TVA ash spill

Project Site i

5A

Station No.:
Date/Time Collected:

KingAshOutFf2 07/16/2009 12:01

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix:

ROANE -

EFO: Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: Priority Date:

08/01/2009

Date/Time Received:

07/16/2009 14:12

07/20/2009

Received By:

**Digestion Metals** 

Ken Hitchman

TEST: Digestion Metals	ME	THOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE

**Field Determinations** 

Dissolved Oxygen: 7.48

Chlorine, residual:

Conductivity:

Temperature:

7.91

242

27.23

W Frye

pH Units

uMHO

mg/L

**CFS** 

7/20/2009

pH:

Other:

Flow:

TEST: ICP	METHOD: EPA 200.7					•
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	210	ua/L	2.9	10	S Ufeabu	7/31/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	260	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	0.38J	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	7.8	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	60	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	Ú	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	υ	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.45J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	6.2	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.66J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	. 78	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.6	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.16J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	4.3J	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	4.2J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618008

**Project Name:** 

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA ash spill

**Project Site No.:** 

5A

Station No.:

KingAshOutFf2

Date/Time Collected:

07/16/2009 12:01

Sampler's Name:

Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code: Send Report To:**  TDEC-WPC 327.34-20

Agency Invoiced:

**TDEC-WPC** TDEC-WPC

**Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

TEST: Mercury

Ken Hitchman

		MAIDI	MOL	ANIALX
METH	OD: EPA 24	5.1		

**Field Determinations** 

**Dissolved Oxygen:** 7.48

Chlorine, residual:

Conductivity:

Temperature:

pH:

Other:

Flow:

7.91

242

27.23

pH Units

uMHO

mg/L

**CFS** 

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	0.038J	μg/L	0.029	0.2	A Wilson	7/21/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00002618009

**Project Name:** 

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Cilnch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Field Determinations** 

Dissolved Oxygen: 9.51

Conductivity:

Temperature:

8.36

264

26.70

pH Units

uMHO

mg/L

**CFS** 

pH:

Other:

Flow:

**Project Site No.:** 

Station No.:

CLINC004.5RO

Date/Time Collected:

07/16/2009 12:13

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

**Billing Code:** Send Report To: TDEC-WPC 327.34-20 **TDEC-WPC** TDEC-WPC

Agency Invoiced: **Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/20/2009				W Frye	7/20/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	94	μg/L	2.9	10	S Ufegbu	7/31/2009

TEST: ICP-MS	MET	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANAĻYZED BY:	DATE
Aluminum	150	μg/L	6.4	10	M Pattanayek	7/24/2009
Antimony	0.73J	μg/L	0.33	1	M Pattanayek	7/24/2009
Arsenic	4.6J	μg/L	0.93	5	M Pattanayek	7/29/2009
Barium	51	μg/L	2.5	5	M Pattanayek	7/24/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/24/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/24/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/24/2009
Cobalt	0.32J	μg/L	0.04	1	M Pattanayek	7/24/2009
Copper	5.6	μg/L	0.38	1	M Pattanayek	7/24/2009
Lead	0.38J	μg/L	0.10	1	M Pattanayek	7/24/2009
Manganese	42	μg/L	0.42	1	M Pattanayek	7/24/2009
Nickel	1.5	μg/L	0.25	1	M Pattanayek	7/24/2009
Selenium	U ·	μg/L	1.3	5	M Pattanayek	7/24/2009
Silver	0.083J	μ <b>g/L</b>	0.03	0.25	M Pattanayek	7/24/2009
Thallium	0.62J	μg/L	0.03	1	M Pattanayek	7/24/2009
Vanadium	6.6	μg/L	3.4	5	M Pattanayek	7/30/2009
Zinc	3.0J	μg/L	1.9	5	M Pattanayek	7/24/2009

K00002618009

**Project Name:** 

TVA-Ash Spill

Sample Description:

12:13

Sampler Project Name: TVA ash spill

Cilnch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

**Field Determinations** 

**Dissolved Oxygen: 9.51** 

Conductivity:

Temperature:

8.36

264

26.70

pH Units

uMHQ

mg/L

CFS

pH:

Other:

Flow:

**Project Site No.:** 

Station No.:

Date/Time Collected:

CLINC004.5RO

Sampler's Name:

07/16/2009 Geoff Klein

County:

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** 

TDEC-WPC

Send Report To: Agency Invoiced:

327.34-20 TDEC-WPC TDEC-WPC

**Priority Date:** 

08/01/2009

Date/Time Received:

07/16/2009 14:12

Received By:

Ken Hitchman

TEST: Mercury	ME	METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.086J	μg/L	0.029	0.2	A Wilson	7/21/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit